

Listing of Claims

1-4. (Canceled)

5. (Currently amended) A method of producing oil comprising:

- ~~growing the transgenic plant of Claim 1~~ a) introducing into progenitor cells of a plant a heterologous constitutive promoter operatively linked to a heterologous polynucleotide that encodes a HIO102 polypeptide comprising an amino acid sequence having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:2, wherein the polypeptide confers a high oil phenotype of increased oil content relative to a plant of the same species not comprising the heterologous constitutive promoter operatively linked to the heterologous polynucleotide, and wherein there is no statistically significant increase in long chain fatty acid components of seed oil relative to seed oil from a plant of the same species not comprising the heterologous constitutive promoter operatively linked to the heterologous polynucleotide;
- b) growing the transformed progenitor cells to produce a transgenic plant, wherein said heterologous polynucleotide sequence is expressed; and
- c) recovering oil from said transgenic plant.

6. (Currently amended) A method of producing a plant with a high oil phenotype, said method comprising:

- a) introducing into progenitor cells of the plant a ~~plant transformation vector comprising a nucleotide sequence~~ heterologous constitutive promoter operatively linked to a heterologous polynucleotide that encodes a HIO102 polypeptide comprising an amino acid sequence having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:2, wherein the polypeptide confers a high oil phenotype of increased oil content relative to a plant of the same species not comprising the heterologous constitutive promoter operatively linked to the heterologous polynucleotide, and wherein ~~without a~~ there is no statistically significant increase in long chain fatty acid components of seed oil relative to seed oil from a plant of the same species not comprising the heterologous constitutive promoter operatively linked to the heterologous polynucleotide ~~plant transformation vector, and;~~
- b) growing the transformed progenitor cells to produce a transgenic plant, wherein said

heterologous polynucleotide sequence is expressed; and

~~c) said identifying a transgenic plant that exhibits an altered the high oil content phenotype relative to a plant of the same species not comprising the plant transformation vector.~~

7. (Currently amended) A plant obtained by the method of ~~Claim~~ claim 6.

8. (Currently amended) ~~The plant of Claim 7~~ method of claim 6, which wherein the plant is selected from the group consisting of rapeseed, soy, corn, sunflower, cotton, cocoa, safflower, oil palm, coconut palm, flax, castor and peanut.

9.-11. (Canceled)

12. (New) A method of producing a plant with a high oil phenotype, said method comprising:

a) introducing into progenitor cells of the plant a heterologous constitutive promoter operatively linked to a heterologous polynucleotide that encodes a HIO102 polypeptide comprising an amino acid sequence having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:2, wherein the polypeptide confers a high oil phenotype of increased oil content relative to a plant of the same species not comprising the heterologous constitutive promoter operatively linked to the heterologous polynucleotide, and wherein there is no statistically significant increase in the proportion of long chain fatty acid components of seed oil relative to seed oil from a plant of the same species not comprising the heterologous constitutive promoter operatively linked to the heterologous polynucleotide;

b) growing the transformed progenitor cells to produce a transgenic plant, wherein said heterologous polynucleotide sequence is expressed; and

c) identifying a transgenic plant that exhibits the high oil content phenotype.